

Primary Needs in Occupational Health

ALBERT E. HEUSTIS, M.D., M.P.H.

CLARE BOOTHE LUCE, while serving as Ambassador to Italy, was troubled by a lingering illness. She returned to New York for extensive medical examinations, which showed anemia and extreme fatigue. When she went back to Rome, the old symptoms reappeared along with some new ones—brittle fingernails, loss of hair, and loosening of teeth. She spent more and more time confined to bed. She had also noticed for a long time that the coffee she drank in her bedroom had a metallic taste, but had decided that Italians simply couldn't make American coffee.

Mrs. Luce had been living in the spacious 17th century Villa Taverna and the heavy beams of her bedroom were decorated in terra cotta with roses and rosettes. Many coats of paint had been brushed on the roses to make them stand out against the background, and as people walked about on the floor above, bits of dust fell from the ceiling. The diagnosis: Mrs. Luce had been breathing, eating, and drinking arsenic from the paint.

This story was of special interest to the Michigan Department of Health because one of our early achievements was a study of arsenical wallpapers dramatically titled "Shadows From the Walls of Death." The study, done in 1874 by Robert C. Kedzie, states:

"Perhaps we could not devise a more effectual way to contaminate the air of our homes with a small amount of arsenical dust, than by the use of wallpaper colored with arsenical preparations. . . . That the air of every inhabited room is filled with finely divided particles of matter is clearly seen when a ray of sunshine is admitted into a darkened

room. That this dust contains arsenic when the walls are covered with arsenical paper has been demonstrated by analysis of the dust which had settled on the furniture. . . . Dyspepsia, neuralgia, pains in the bones and joints simulating chronic rheumatism, headache, general debility, etc., are symptoms which often attend this form of chronic arsenical poisoning. . . . Retail dealers, for the most part, are innocent in this matter, for most of them are ignorant of the composition of the coloring matter, and are not aware of the danger of its use. . . . But the manufacturers cannot enter a plea of ignorance, for they know the materials employed and the danger of their use. . . . A paper printer cannot work more than two or three weeks at a time with arsenical pigments; he must then change his work to enable him to sufficiently recover his health to again begin printing in arsenical colors."

This early work is a reminder that occupational diseases have been with us for a long time, and while many current problems may be more subtle than those of earlier days, we seldom, if ever, are completely rid of even the oldest hazards. The same basic problem, shared by midwest farm families of the late 19th century and a U.S. Ambassador of the mid-20th century, indicates the exceedingly important place of occupational health in the whole field of public health. The Kedzie study was instrumental in the development of the Michigan Health Department nearly 90 years ago. With the growth of population, industry, and technology, occupational health can only increase in importance.

In determining the needs in occupational health today, there are five specific approaches to consider as discussed in the following pages.

Vigorous Effort

First, there is real need to attack occupational disease problems vigorously and in every State. In Michigan, the State occupational health staff

Dr. Heustis is State health commissioner of Michigan. This article is based on a paper presented before the American Conference of Governmental Hygienists held at Detroit on April 10, 1961.

now numbers 28, working from 8 district offices. In the last 10 years both the number of plants served and the number of workers served have increased by one-fourth. Requests from industries have increased 60 percent. During the past 10 years our annual ventilation conference has brought together nearly 2,000 people. We now provide more than 4,500 industrial health consultations every year. Our occupational health and education staffs have combined their talents to produce a quarterly bulletin, *Michigan's Occupational Health*, which has a circulation of about 4,000. And we have engaged in activities in the newer fields of air pollution and radiation.

Despite this progress, we still see much unfinished business and many new problems brought on by this age of plastics and pushbuttons. The image of public health has not kept pace. There are still many who equate public health with communicable diseases and dead horses in the river and little else. Those who are truly interested in modern public health must seek to demonstrate the importance of occupational health, to project it to those in responsible positions. It is our job, collectively, to present the commonplace in occupational health in a way that will be exciting, create understanding, and stimulate support.

Wise Use of Law

As a State health commissioner, I favor realistic and constructive use of regulatory powers in occupational health in conjunction with the educational process. Basically, the educational approach is fine, praiseworthy, and constructive. It has its place and should be used. But there are instances when we must stop saying, "Please," and must use our authority to gain compliance or shut down the operation.

Let us take a hypothetical example. We may visit a foundry where two or three thousand people are employed and see practices which we believe will lead to silicosis in some workers in 10 or 20 years, but the evidence is not the kind that would stand up well in court. Confronted by this situation, we must decide whether we will make the greater gain for public health by trying to close the plant or by continuing to work with management to overcome the prob-

lems. If we fail in an attempt to close a plant, the program receives a serious setback. In this case, then, we would probably decide to work along with management, even with some potential risk to the workers, to achieve longrun adoption of the program.

In another situation, relying only on the longrun program would be less than responsible. Among employees of an operation melting down old lead batteries a few years ago, two men were hospitalized with proved lead poisoning, and blood levels of lead in others were high. This was not the place or time for moving warily. The day we received the evidence the plant was closed and its operators were told to clean up. We worked with the plant managers over a weekend and a holiday, and now one of the finest letters in our files is from this plant.

Constructive use of regulatory powers means we must be as quick to approve and commend as we are to disapprove and criticize. We must be willing to tell industry under what conditions an operation will be approved and then show how these conditions can be met. We must also weigh the economic hardships along with other social consequences, and having weighed these, we must do today what will be best for public health 10 years from today. In the Michigan program, we have seen the educational approach, coupled with firm and correct use of the law, save time, money, and harassment, give our staff needed support, earn the respect of industry and labor, and make the difference between health protection and lack of it for many working people. In this way we make realistic and constructive use of regulatory powers in occupational health in conjunction with the educational process.

Continuous Consultation

Third, we seek to work with industry, not only at management's request, but also on a routine basis. We must visit plants frequently enough to know the processes and to look for those things which we, and not industry necessarily, are trained to recognize as potentially harmful.

Only by visiting factories regularly are we going to keep our fingers on older problems such as lead poisoning, mercury poisoning, sili-

cosis, and others, which continually appear in both old and new settings. In 1959, nearly 150 Michigan workers were receiving compensation for silicosis. With the average cost per worker of about \$10,000, these 150 cases represent approximately \$1,500,000, in addition to the loss of health. We couldn't expect to do much about this from behind a desk in a central office.

Only by visiting factories regularly, furthermore, are we able to discover new hazards before serious harm is done. On a routine call made last year to a plant making bowling pins, we found a hazard from fumes and the potential for a serious explosion. The fumes resulted from a process in which the pins were coated with a resilient plastic material by several dips in a toluene-base solution of the plastic. The plastic was applied so that the pins can take the drubbing they get from automatic pinsetting machines, which bounce the pins together. At first management was cool to recommendations, but when they understood that if they wanted to continue to operate they would have to take necessary protective measures, the needed work was done. The plant management now appreciates and respects our decisions and realizes that serious danger was averted. This is preventive medicine, a product of visiting industry regularly.

Full Use of Competencies

We must also break some traditional boundary lines of occupational health in order to use our training, knowledge, and skills most effectively and the taxpayer's dollars most economically. In 1960, Thurm heaters were responsible for more than a dozen carbon monoxide deaths, but if health officials had not checked some 2,000 of these units all over the country, the death toll could have been in the hundreds. In Michigan, we learned of this hazard when an alert staff member of our division of occupational health heard on his radio that three women had been found dead in a trailer, with the cause of death listed as lack of oxygen. We could have ignored the incident as being beyond the realm of occupational health. Instead, we tested blood specimens of the victims and found carbon monoxide. We tested the trailer and its heater and found a mobile gas chamber. We

then worked with the trailer and heater manufacturers, the fire marshal, the Public Health Service, and all others concerned to protect the public from this potential danger.

When we have the knowledge, equipment, and trained personnel to deal with a problem, it is our job to use these resources wherever and however they are needed, whether to deal with explosive hazards, air pollution, or household poisons such as carbon tetrachloride. We must use the special knowledge of occupational health beyond as well as within the traditional industrial setting.

Field Research

Field research to complement basic laboratory research is a fifth need in occupational health. This includes continued engineering research, such as investigations of airflow and ventilation, and epidemiologic studies. A recent study in Michigan showed that pink rot infection in celery is responsible for celery dermatitis among fieldworkers. In response to a dermatologist's inquiry, we checked with celery growers and found that about 6 out of 10 workers had itching, sore, and often blistered skin, usually on their hands and arms. Then, with the cooperation of the Public Health Service, we ran patch tests and studied extracts from celery plants, and we learned that the dermatitis is associated with pink rot, a fungus disease in celery. Another type of needed field research is the survey, often the only way to determine the hazard potential of a new product or a new process. For example, our staff has recently studied a number of establishments using gas-fired radiant-heat panels. Despite claims made by manufacturers and others, our investigators have found gas and fumes that are not exhausted to the outside and persistent, low-level concentrations of carbon monoxide.

Summary

There are five primary needs in a modern occupational health program:

1. Vigorous development of services in cooperation with doctors and employees, unions, and management.
2. Realistic and constructive use of both regulatory powers and educational techniques.
3. Regular visits to industrial establishments.

4. Application of knowledge gained in occupational health wherever it is required, in or out of industry.

5. Field research: engineering studies, epidemiologic investigations, and surveys.

Health Exhibit in Rome

Approximately 200,000 persons viewed the demonstrations, exhibits, and film showings in the U.S. presentation at the International Health Exhibition, sponsored by the Italian Government in Rome, November 10, 1960, to January 8, 1961.

Exhibits on hospital facilities and care, heart disease research, cancer control and research, air and water pollution, fluoridation, and virus research illustrated and documented the theme "Science for Life and Health." Lay and technical health and medical films were shown continuously in the pavilion theater.

Twenty-five thousand copies of the four-color "prestige" brochure, entitled "Science for Life and Health," and describing the progress of the health sciences in the United States, and 300,000 two-color leaflets were distributed. The material, printed in Italy for the United States, was available in English and Italian.

Contributing to the popularity of the U.S. presentation was the staffing of the exhibits and demonstrations with medical personnel and bilingual guides and demonstrators who could discuss the exhibits and answer questions. Most of the guides were students recruited from medical and dental schools.

The continuous showing of medical films, produced by American health and medical agencies, drew large audiences.

Among the guests attending the exhibition were the President of Italy and members of

Of these, I would emphasize most the need to visit industry regularly, because to keep pace with technological change and to make full use of competencies, we must go to industry, and not wait for industry to come to us.



his cabinet, including the Minister of Health and his staff, and foreign dignitaries. The Minister of Health made a television broadcast from the U.S. pavilion announcing the formal opening of the exhibition.

The U.S. exhibit, one of nine foreign health presentations, was housed in a specially constructed pavilion on the first floor of the West Palace of the Esposizione Universale di Roma. Harry Wiener, Bureau of Medical Services, Public Health Service, served as art director, and John C. Eason, Division of International Health, Public Health Service, as coordinator of the U.S. presentation.